Comment	Response
USEPA General Comments on August 2006 Draft RI Work Plan, dated September 15, 2006, Patrick Bayou Superfund Site – Deer Park	
1. US EPA Remedial Project Manager, Philip Allen, was not included on the distribution list for the PSCR and should be. Please correct spelling of his name (one "L" in Philip) on page ii of the QAPP.	A copy of the Patrick Bayou PSCR was provided to Philip Allen. His name has been corrected on Page ii of the QAPP in the attached RI Work Plan and will be included in all subsequent deliverables.
2. "Mr. Keith" should be changed to "Dr. Keith" in Appendix A (6 occurrences)	This has been changed in the Qualifications of Key Personnel (Appendix A) in the revised document.
3. Header of 2nd page of Dennis Hanzlick's bio in Appendix A should reflect his Ph.D.	The header of the second page of Dr. Hanzlick's resume has been changed accordingly.
USEPA Comments, Project Management Plan, dated September 15, 2006	
1. Figure 1-2 does not have a link from the Table of Contents as the other figures do.	A link to Figure 1-2 has been added to the electronic version of the RI Work Plan.
2. p 2, ¶ 1, 1st sentence: "The site is complicated… large area of off-site surface water…". This sentence should be modified to reflect that Patrick Bayou drains large off-site areas during rain events (surface runoff etc.), however, not necessarily large areas of surface water.	The sentence has been modified as follows: "The Site is complicated by the fact that it drains a large off-site surface area during rain events." Please see Page 2 of the Project Management Plan for this change.

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3. § 4.0: Please clarify: It is unclear how the "scoping-level" risk assessment discussed for Work Package 1 (p 11, § 4.1, ¶ 3) differs from that discussed for Work Package 3 (p 15, § 4.3.3, Biota). The scoping-level risk assessment of WP 1 implies COPC identification based on historical data alone. If the scoping-level RA is to include data collected as part of WP 3, then it is unlikely to be included as part of WP 1. Also, is the term "scoping" being used in the same context as EPA guidance "screening" risk assessment is used?	The primary purpose of the "scoping-level risk assessment was to identify contaminants of potential concern (COPC) for the implementation of Work Package 2 field efforts in October 2006. That assessment was successfully completed and agreement was reached on those COPC with EPA and TCEQ prior to the implementation of Work Package 2 field sampling and analysis. At this juncture, the primary purpose of the scoping-level risk assessment is transcended. To avoid confusion and to streamline the risk-assessment process the JDG will complete a risk evaluation that will include new data from Work Package 2. In the interim, as the deliverable for Work Package 1, the JDG will submit a summary of the data verification and validation of the existing database. This validation was performed to identify the COPC for Work Package 2. In addition, the JDG will prepare and submit an updated project database that includes historical data being carried forward in the RI/FS and new Work Package 2 data.
4. Figure 1-3: Sources should include Direct discharge (outfalls). Make sure sources of this figure are consistent with sources on Figure 1-4 and 1-5.	Figure 1-3 and Figure 1-4 have been modified and footnoted to identify sources of contaminants as those described in Figure 1-5.
5. Figure 1-4: Human Health CSMs should consider at least qualitative evaluation of Current/Future Offsite receptors.	Offsite worker and recreational scenarios have been added to Figure 1-4 and will be addressed qualitatively, at a minimum.

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6. p 13, § 4.3.1: "temporal survey"? Describe how long/often.	Time frames for physical data collection (temperature, dissolved oxygen, salinity) are defined in Figure 3-1 of the QAPP. At this time, it is expected that data will be collected continuously (minimum 1 hour intervals) beginning in October 2006 and ending in October 2007.
7. p 15, § 4.3.3, Data gaps in chemistry: Are there data gaps for PCBs or Dioxins/Furans? For example, the plan should include congener specific analysis as well as totals.	No historical site investigations have included analysis of PCB congeners in Site media. As such, this represents an apparent data gap from a risk assessment perspective. Dioxin/furans have been included in previous investigations although the adequacy of the historical data to address risks from dioxin/furans has not been fully determined. PCB congeners, PCB Aroclors, and dioxin/furans were included in the Work Package 2 analytical program for surface and subsurface sediments. The results of the Work Package 2 analytical program will be reviewed during the RI process to determine if data gaps for these parameters have been addressed. PCB congeners will be added to section 4.3.3 as an apparent data gap. The text has further modified to indicate that the bulleted analytes represent the most apparent data gaps in that no historical data for these analytes are available. Text has been modified to also indicate that other data gaps may exist for the Site as well and will be addressed during the RI process.
USEPA Comments, Quality Assurance Project Plan, dated September 15, 2006	
The Quality Assurance Plan neglects discussions regarding toxicity testing. Toxicity testing was listed as an expected data generating operation in the Project Management Plan (p 15) of the Draft RI Work Plan. The following are pertinent examples.	Toxicity testing is not planned as a component of the work packages in the RI Work Plan; the intent of language in Section 4.3.3 was not to list toxicity testing or bioassay as an expected data-generating operation in the RI Work Plan, but rather to indicate that data characterizing the potential toxicity and bioavailability (e.g., AVS/SEM and equilibrium partitioning) of

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	Site contaminants are expected to be generated. We will ultimately conduct a risk assessment, and complete collection of "data related to the bioavailability, fate, and toxicity of potential Site contaminants." Toxicity testing is not included or recommended as part of the RI Work Plan because of the inconclusive nature of the results of previous bioassay studies with Site media. Additional bioassay testing is not expected to significantly reduce uncertainty in the assessment of risks to receptors from the Site. We will instead focus on contaminant distributions and bioaccumulation issues to address risks of exposure to Site contaminants. The text has been modified to clarify that bioassay or toxicity testing is not anticipated as a data generating operation for the RI.
1. An additional section should be added (perhaps after Section 10) to discuss toxicity testing procedures.	As stated above, toxicity testing is not a component of the RI Work Plan.
2. p 9, § 4.1: The intention of conducting toxicity tests is stated in the Project Management Plan (p 15). Therefore, appropriate bullets and discussions need to be added.	As stated above, toxicity testing is not planned as a component of the work packages in the RI Work Plan, and is it not listed as an expected data generating operation; therefore, no bullets or discussions are necessary.

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3.p 16, § 6.3.1: This section should include "Field Operations Records" for any *in situ* toxicity testing or any toxicity testing to be conducted on field-collected samples.	Please see response above.
4. p 17, § 6.3.2: This section should include "Laboratory records" information pertaining to toxicity testing.	Please see response above.
USEPA Comments, Data Management Plan, dated September 15, 2006	
Again, this management plan neglects and needs to incorporate a section on the handling of toxicity testing data.	Toxicity testing and the generation of toxicity testing data is not a component of the RI Work Plan. This section is therefore not necessary.
USEPA Comments, Health and Safety Plan, dated September 15, 2006	
1. p 3, § 2.1, ¶ 3, 1st sentence: "The site is complicated…" See Project Management Plan comment #2 above.	The sentence has been modified as follows: "The Site is complicated by the fact that it drains large off-site surface areas during rainfall events." Please see Page 3 of the Health and Safety Plan for this change.
2. p 6, § 3, Project Health and Safety Manager: Please note and correct: "Dennis Hanzlick, Ph.D. (Anchor)"	Noted and corrected.
3. p 28, § 8: Section 4.2.2.5 (p 16) states that 'although chlorine gas is not expected at the site, release from adjacent facilities is possible'. As such, this section needs to address procedures for monitoring and actions to be taken if chlorine gas is released.	This concern was addressed and procedures added to the Health and Safety Plan prior to the initiation of field investigations.

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4. Attachment A, 2nd page: List affiliation for Jess Stevenson:	Jeff Stevenson is affiliated with Shell; his contact information has been added to the attachment.
Texas Commission on Environmental Quality Comments, dated September 18, 2006	
This document outlines the proposed approach for the Remedial Investigation/Feasibility Study being performed by the Patrick Bayou Joint Defense Group (JDG). The document is general in nature; more detailed work plans associated with each work package outlined in this work plan will be submitted in the future. As such I only have general comments, which are outlined in this memo. 1. 4.3 Work Package 3 – Ecological and Human Health Risk Assessment - We understand that the JDG will be submitting a detailed work plan for this work package in the future. As such, the text presented in this particular submittal is general in nature. We offer the comments that follow for consideration when that work plan document is prepared.	We appreciate TCEQ's thorough and thoughtful review of the General Remedial Investigation Work Plan. Because TCEQ has primarily provided general comments and recommendations related to the preparation and implementation of future work plans, they are not specifically addressed in this response to comments. The suggestions and recommendations made by TCEQ will be considered and incorporated into future work packages as appropriate.
2. 4.3 Work Package 3 – Ecological and Human Health Risk Assessment - The text indicates that the ecological risk assessment (ERA) will be performed in accordance with appropriate EPA documents (page 12). We suggest that Anchor also consider the information in the TCEQ's Ecological Risk Assessment Guidance document and update as much as possible (TCEQ, 2001 and TCEQ, 2006).	
3. 4.3.2 Biological Data - The text indicates that reconnaissance surveys of aquatic and wildlife receptors at the site will be completed to provide information in selecting appropriate assessment endpoints. We suggest that the survey should	

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not be limited to Patrick Bayou; downstream areas should be evaluated as necessary to address potential impacts as a result of contaminant transport downstream.	
4. 4.3.2 Biological Data - One objective to the receptor survey should be to determine the presence of protected species or the availability of habitat that might be used by these receptors. Issues #5 and #19 in TCEQ, 2005 highlight the agency's approach for protected species in ERA evaluations.	
5. 4.3.3 COPC Sampling (Sediment) - The text indicates that it is expected that additional sampling of the ecologically relevant (0 to 10 cm) sediment surface will be necessary to address risk assessment needs at the site. Sediment samples should target the biotic zone in Patrick Bayou, which may be less than 10 cm in depth. Section 3.9.2.6 of TCEQ, 2001 (previously cited) provides more discussion on this topic.	
6. 4.3.3 COPC Sampling (Sediment) - The future work plan should consider the possibility of sampling/analysis of sediment pore water. Chronic toxicity in sediment pore water has not been ruled out by past investigations.	
7. 4.3.3 COPC Sampling (Surface Water) - The text indicates that the work plan will include the development of a sampling program designed to address data gaps in the existing data for characterizing exposure of receptors to surface water. The JDG may want to consider the necessity of collecting dissolved and total metals data to support the ERA. Dissolved metals data may be more appropriate for assessing compliance with water quality standards for some metals. Otherwise, total metals data is usually used for food chain evaluations in the ERA.	

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8. 4.3.3 COPC Sampling (Surface Water) - Additionally, the JDG may want to consider surface water sampling near the sediment surface to assess exposure and mixing at depth.	
9. 4.3.3 COPC Sampling (Biota) - The text indicates that fish and shellfish data will be collected to better evaluate wildlife exposure. We support this proposal. We suggest that Anchor and JDG work closely with your analytical laboratory to ensure that adequate tissue mass is available for testing. This is often an impediment to tissue studies.	
10. 4.3.3 COPC Sampling (Biota) - Regarding fish tissue collection, TCEQ, 2003 may be consulted for guidance. It is not imperative that this guidance be used, but similar approaches should be considered. The work plan should specify what types of fish (species, trophic level, and size) will be targeted for collection. Home range and migratory/feeding patterns/behavior should also be considered in selection of fish species. For example, in the ecological risk assessment performed for Greens Bayou, CPF, 2003 found that striped mullet demonstrated higher site-related tissue concentrations than upper trophic level fish. CPF attributed this to the mullet behavior of sucking unconsolidated sediment into their mouths and ingesting finer grained organic sediment and detritus. Additionally, our initial impression is that most wildlife receptors feeding in Patrick Bayou will select smaller fish.	
11. 4.3.3 COPC Sampling (Biota) - The text also indicates that the future work plan will also allow for collection of regional tissue samples to allow comparison to appropriate Galveston Bay-wide background tissue burdens. In this case, we suggest that the future work plan detail the target tissues	

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(trophic level, species, and tissue types) and sample locations along with a rationale for their selection. The work plan should also detail how this information will be used for future risk management decisions. For instance, the work plan should provide a discussion of the statistical approach (if proposed) for comparison of background tissue to the site data.	
12. 4.3.3 COPC Sampling (PAHs) - In this discussion, the JDG explains that sediments will be analyzed for an expanded list of PAHs (polynuclear aromatic hydrocarbons) to support an equilibrium partitioning evaluation of PAH mixtures that are protective of benthic organisms. JDG cites a U.S. EPA document presumably as the guidance to be used in this approach. Although we are aware of this document, the work plan should provide much more detail regarding the planned approach. TCEQ is not strictly opposed to this approach since it evaluates mixtures, similar to TCEQ's total PAH benchmark approach. However it does represent an alternate approach to evaluating potential risks to benthic invertebrates. We suggest that JDG address the following topics in the work plan: • Specifically discuss and compare the U.S. EPA approach and the TCEQ approach in terms of protectiveness and appropriateness for the site in question. • Since Patrick Bayou is relatively shallow at many locations, consider the protectiveness of this approach assuming that the sediments could be exposed to UV light. • Consider the composition of the organic carbon at the	

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site relative to the assumptions inherent in the methodology. • Consider the presence of any additional narcotic compounds in sediment. • Explain how non-detected values will be addressed in this approach. Consider that the approach is not necessarily intended to be protective of organisms that ingest contaminated sediment.	